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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09 773,798	02/01/2001	Douglas Duane Coolbaugh	BUR920000143US13890	8546

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EXAMINER

FARAHANI, DANA

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 05/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/773.798

Applicant(s)

COOLBAUGH ET AL

Examiner

Dana Farahani

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on March 19 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Applicant's Admitted Prior Art (AAPA) in view of Tsuchiaki (U.S. 5,963,789)

Regarding claims 1, 9, 14, and 15, AAPA discloses in figure 1 a method of providing a heterojunction bipolar transistor structure comprising at least an underlying SiGe base region 22, an insulator layer 26 formed on surface portions of the underlying SiGe base region, and an emitter 28 formed on the insulator layer and in contact with the underlying SiGe base region through an emitter opening formed in the insulator layer, the emitter, the insulator layer and the SiGe base region each having exposed sidewalls; and siliciding exposed silicon surfaces of at least the emitter and the SiGe base region. AAPA does not disclose forming a passivation layer on the exposed sidewalls of the emitter, the insulator layer and portions of the SiGe base region. Tsuchiaki discloses column 7, lines 1-9, that passivation layer 204 of figure 2C protects the sidewalls of the device shown. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form passivation layer on exposed sidewalls of the emitter, the insulator layer, and portion of the base region to protect those layers, and further isolate the emitter and the base contacts.

Regarding claims 2, and 5-8, Tsuchiaki does not expressly disclose passivation layer is formed by CVD. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use CVD at the condition the applicant discloses, since it was known in the art CVD under those conditions is used to deposit layers in a semiconductor device.

Regarding claims 3, 4, 16, and 17, AAPA in view of Tsuchiaki discloses the claimed invention except for the passivation layer made of nitride, oxide, and oxynitride, or any combination thereof. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use these materials as passivation layer since it was known in the art that these layers are used as passivation layer.

Regarding claims 10-12, AAPA discloses the claimed invention except insulation layer made of SiO_2 or Si oxynitride, silicon used in the substrate, and an intrinsic emitter. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use these materials as passivation layer since it was known in the art that these materials are commonly used as insulator and substrate, and use intrinsic emitter so there would be no need for adding impurities to the emitter.

Regarding claim 13, AAPA discloses patterned insulator 26 of figure 1. AAPA does not disclose multiple patterned insulator layer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use multiple insulator layer since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art.

Response to Amendment

3. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (703)305-1914. The examiner can normally be reached on M-F 9:00AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703)306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9318 for regular communications and (703)872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Dana Farahani
April 23, 2002


OLIK CHAUDHURI
SUPERVISOR, PATENT EXAMINER
TECHNICAL SERVICES